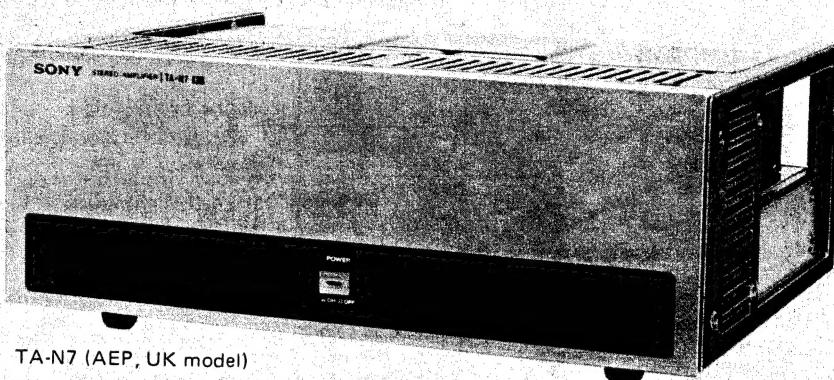


TA-N7/N7B



TA-N7 (AEP, UK model)

TA-N7 (Panel: Silver)

AEP Model

UK Model

TA-N7B (Panel: Black)

AEP Model

UK Model

US Model

Canadian Model

STEREO POWER AMPLIFIER

SPECIFICATIONS

GENERAL

Power Requirements: 240V ac, 50/60Hz (UK model)
220V ac, 50/60Hz (AEP model)
120V ac, 60Hz (US, Canadian model)

Power Consumption: 480W (UK model)
420W (AEP model)
160W (US model)
350VA (Canadian model)

Dimensions: Approx.
430(W) x 170(h) x 335(d) mm
17(w) x 6 1/2(h) x 13 1/4(d) inches
Including projecting parts and controls

Weight: (UK, AEP model)
Approx. 20.1kg, 44 lb 5 oz (net)
Approx. 22.6kg, 49 lb 14 oz
(with shipping carton)
(US, Canadian model)
Approx. 21kg, 46 lb 5 oz (net)
Approx. 23.6kg, 52 lb 1 oz
(with shipping carton)

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND  MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

**ATTENTION AU COMPOSANT AYANT RAPPORT
À LA SÉCURITÉ !**

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY.

—Continued on page 2 —

SONY
SERVICE MANUAL

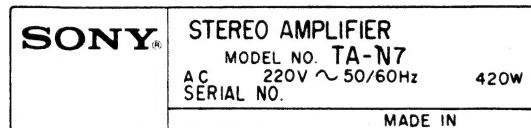
POWER AMPLIFIER SECTION

Continuous RMS Power Output: (Less than 0.01% THD)	Both channels driven simultaneously At 20–20,000 Hz 100W + 100W (8Ω)	IM Distortion: (60Hz: 7kHz = 4:1)	Less than 0.01% at rated output Less than 0.008% at 1W/10W output
Power Bandwidth:	According to DIN 45500 (AEP, UK model) 100W + 100W (8Ω)	Frequency Response:	DC–100,000Hz ± 0 dB (DIRECT INPUT)
Damping Factor:	5–35,000 Hz (8Ω), IHF (AEP, UK model)	S/N Ratio:	6–100,000Hz ± 0 dB (C COUPLED INPUT)
Harmonic Distortion:	100 (8Ω, 1kHz)	Residual Noise:	Greater than 120 dB, short-circuited input
	Less than 0.01% at rated output		Less than 0.024mV (8Ω) weighting
	Less than 0.008% at 1W/10W output		network A
		Inputs:	
		DIRECT	Sensitivity
		C COUPLED (3Hz cut-off frequency)	1.3V (for rated output)
			50kΩ
		Outputs:	
		SPEAKER terminals:	
		Accept speakers of 8Ω or more	

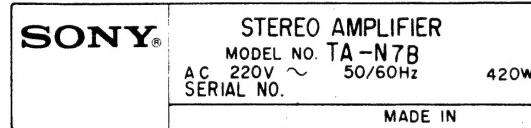
• MODEL IDENTIFICATIONS

— Specification Label —

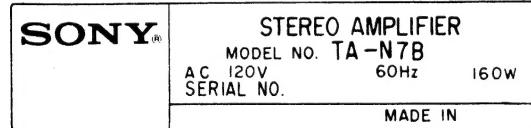
AEP model (TA-N7)



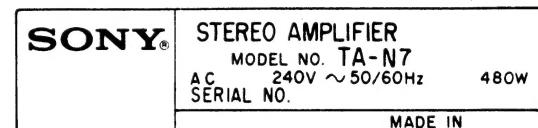
AEP model (TA-N7B)



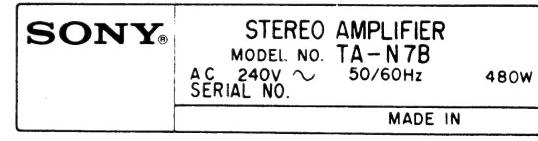
US model (TA-N7B)



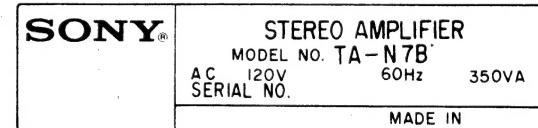
UK model (TA-N7)



UK model (TA-N7B)



Canadian model (TA-N7B)



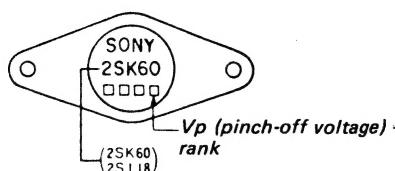
SERVICING NOTES

- This set uses bipolar transistors and V-FETs in cascade circuit to maintain stable biasing. When replacing the three P-channel V-FETs 2SK60 and/or the three N-channel V-FETs 2SJ18 in each channel, use three matched ones which have the same V_p (pinch-off voltage)-rank figure printed on them as shown below. The fluctuation of the V_p rank of the three can be acceptable on one-rank-difference basis.

- Two kinds of hexagonal-socket screw-drivers are required for the following removal.

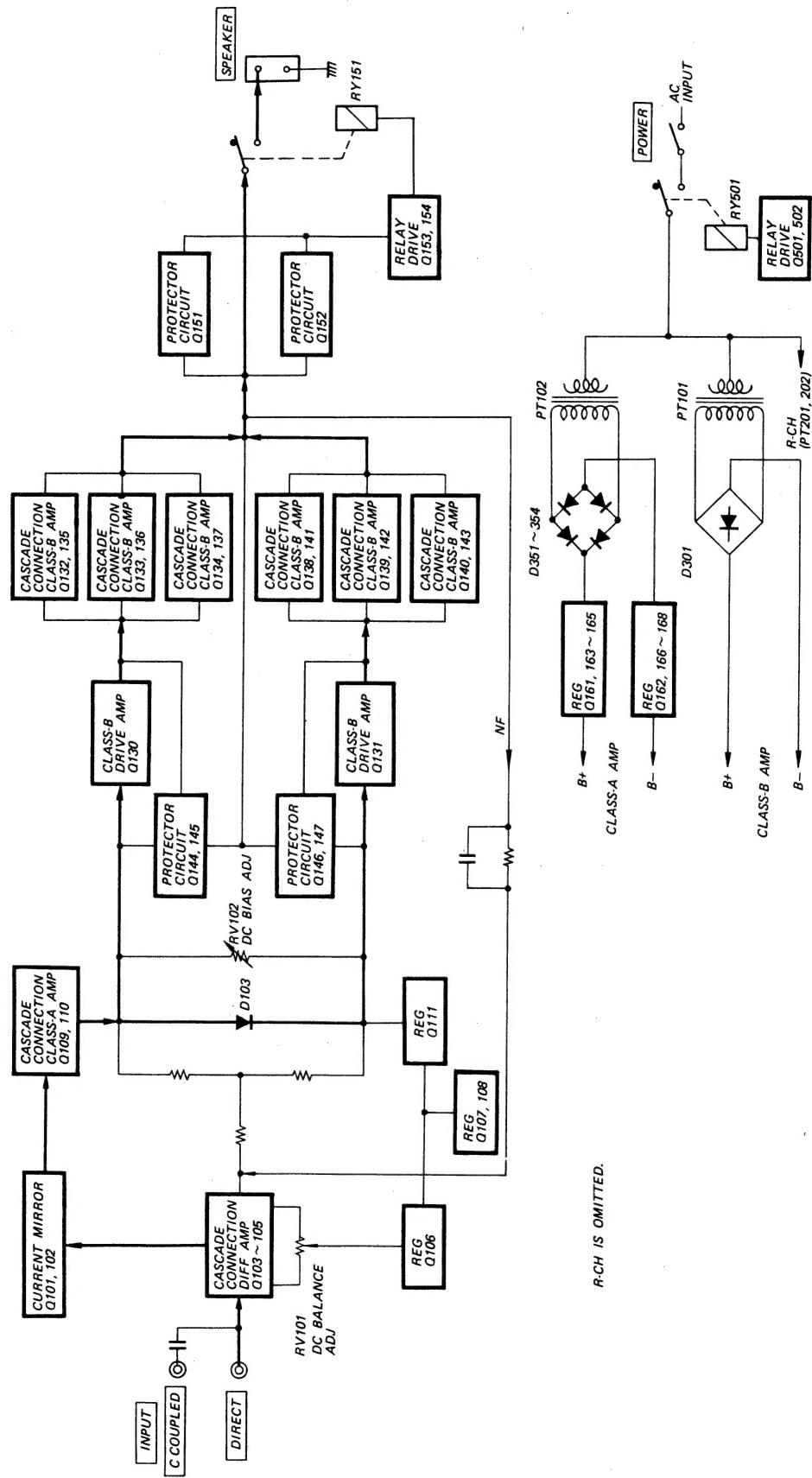
2.5mm : top cover removal

4mm : side plate removal



SECTION 1 OUTLINE

1-1. BLOCK DIAGRAM

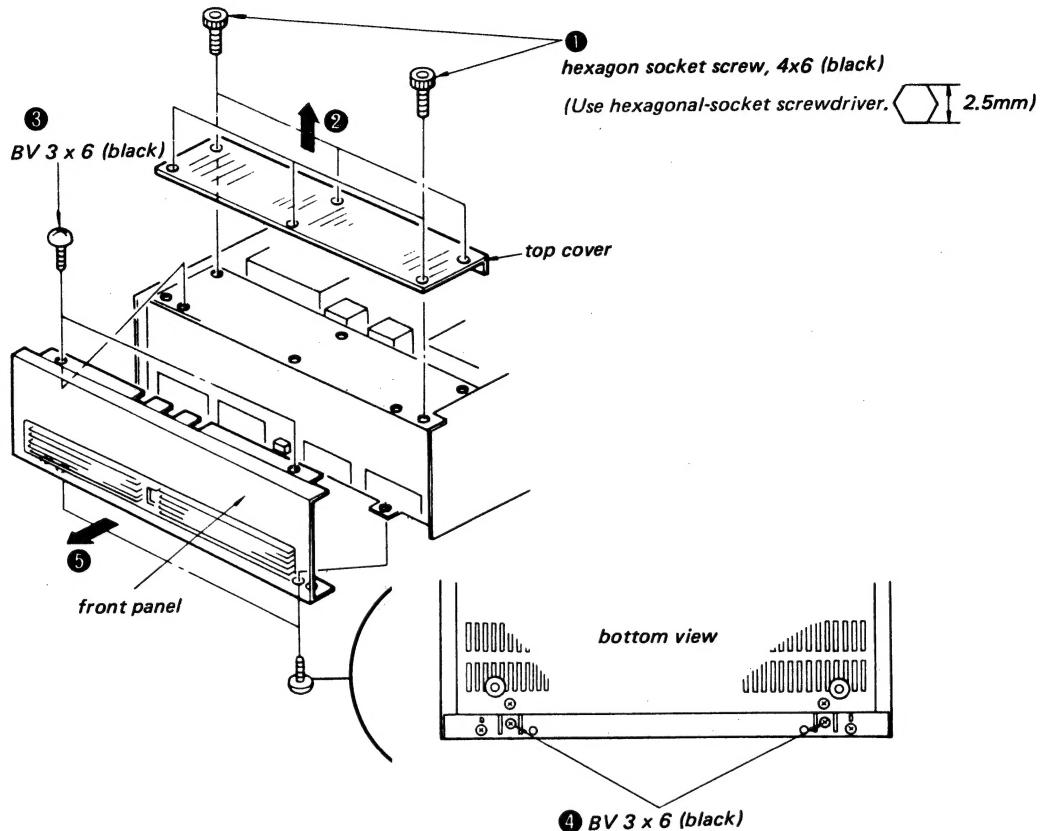


SECTION 2

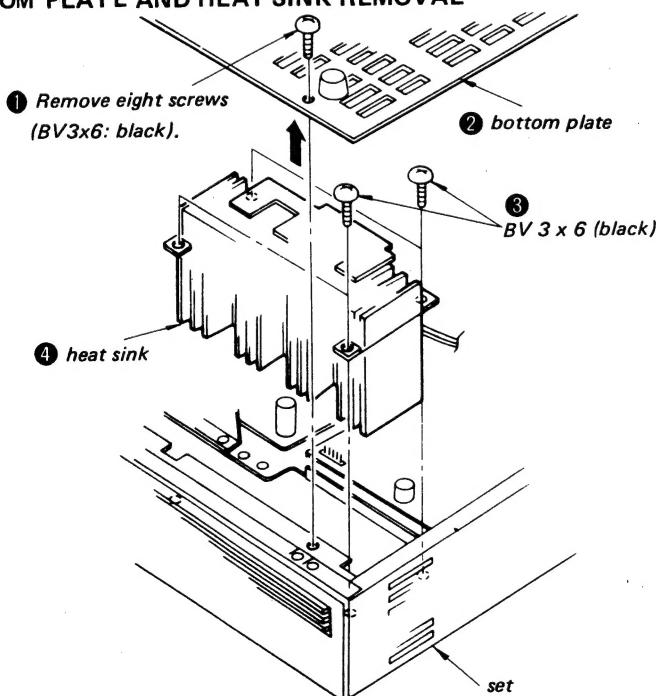
DISASSEMBLY

Remove the parts in the numerical order.

FRONT PANEL REMOVAL



BOTTOM PLATE AND HEAT SINK REMOVAL



SECTION 3

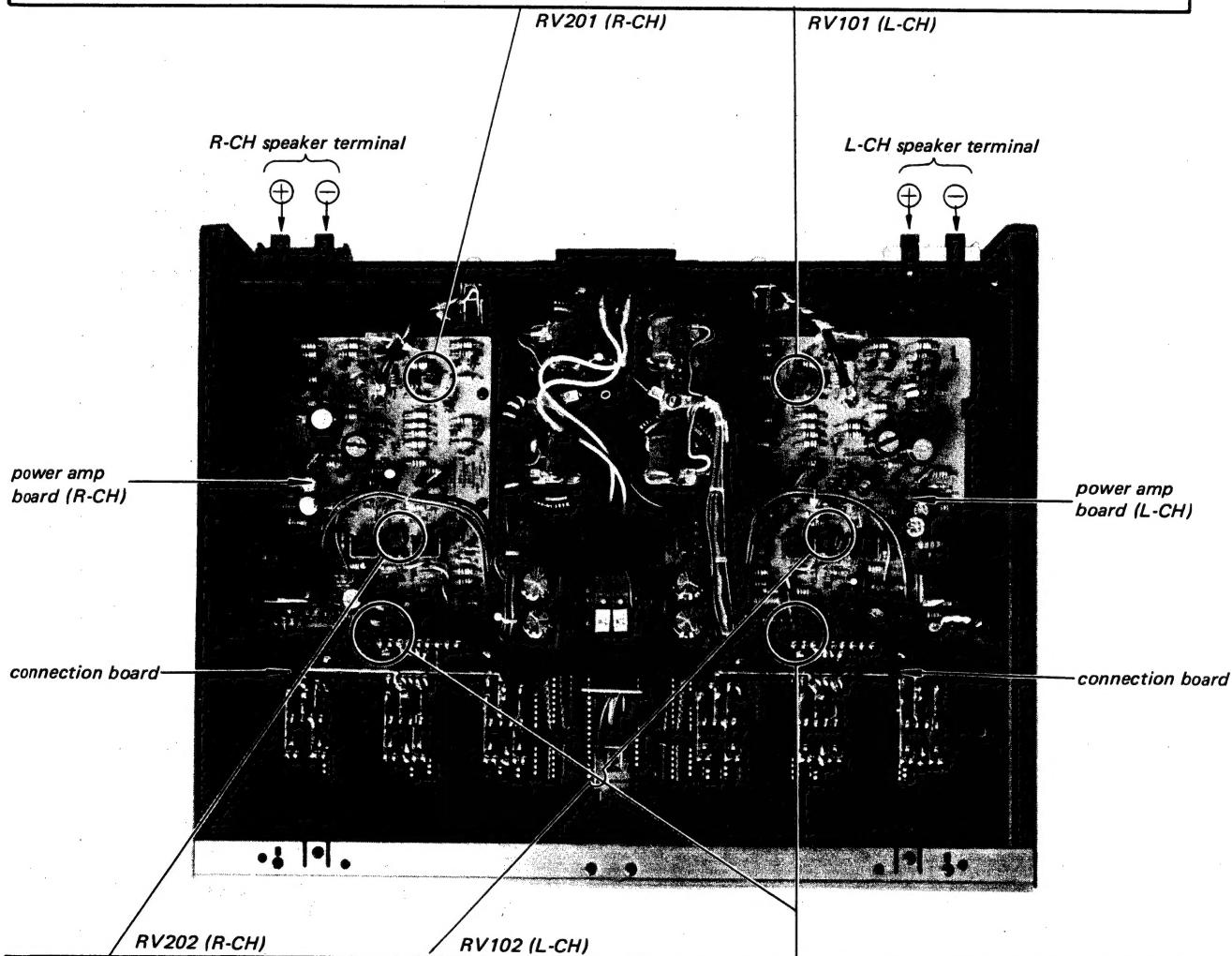
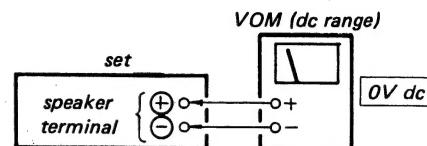
ADJUSTMENT

Note:

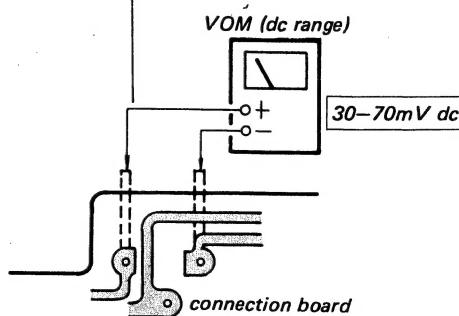
1. Apply the rated ac line voltage to the set directly. Do not increase the voltage gradually by using a variable transformer or other such instrument; this will cause a V-FET failure.
2. Turn the set on and wait a few minutes for warm-up.
3. Alternately repeat the two adjustments 2 or 3 times.

DC Balance Adjustment

Adjust RV101(L-CH) and RV201 (R-CH) for 0V dc with no signal input.


DC Bias Adjustment

Adjust RV102 (L-CH) and RV202 (R-CH) for 30–70 mV dc with no signal input.

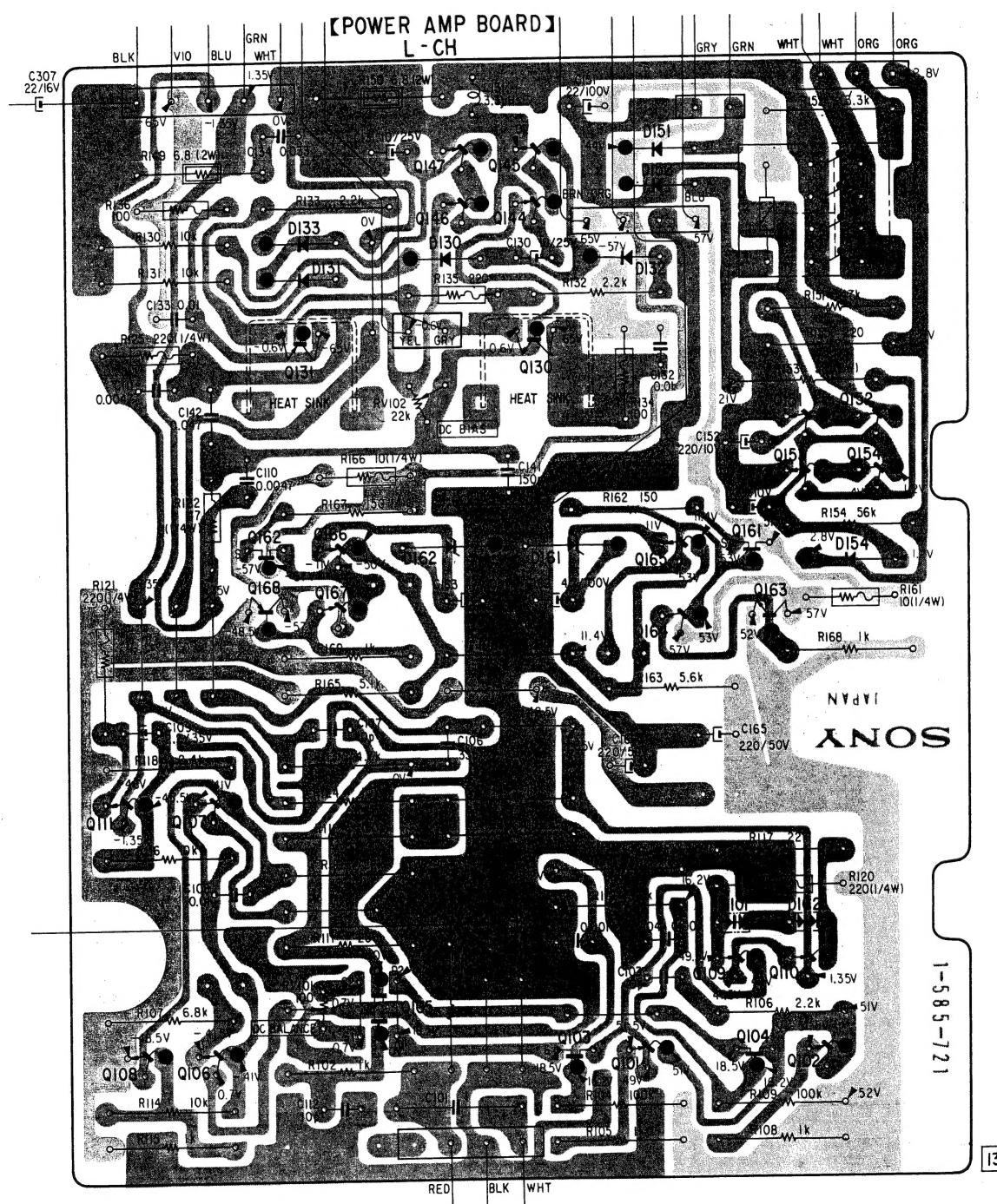


SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM - L-CH Power Amp Board -

- Conductor Side -

• Replacement Semiconductors: See page 8.



Q	III 108	107 106	162 168	131 167	166 105	147 146	145 130	103	101	165 164	161 109	151 104	153 103	152 102	154
D						133 131	130 162		161	132 152	151 152	101	102	154	

• : B + pattern

○ : B - pattern

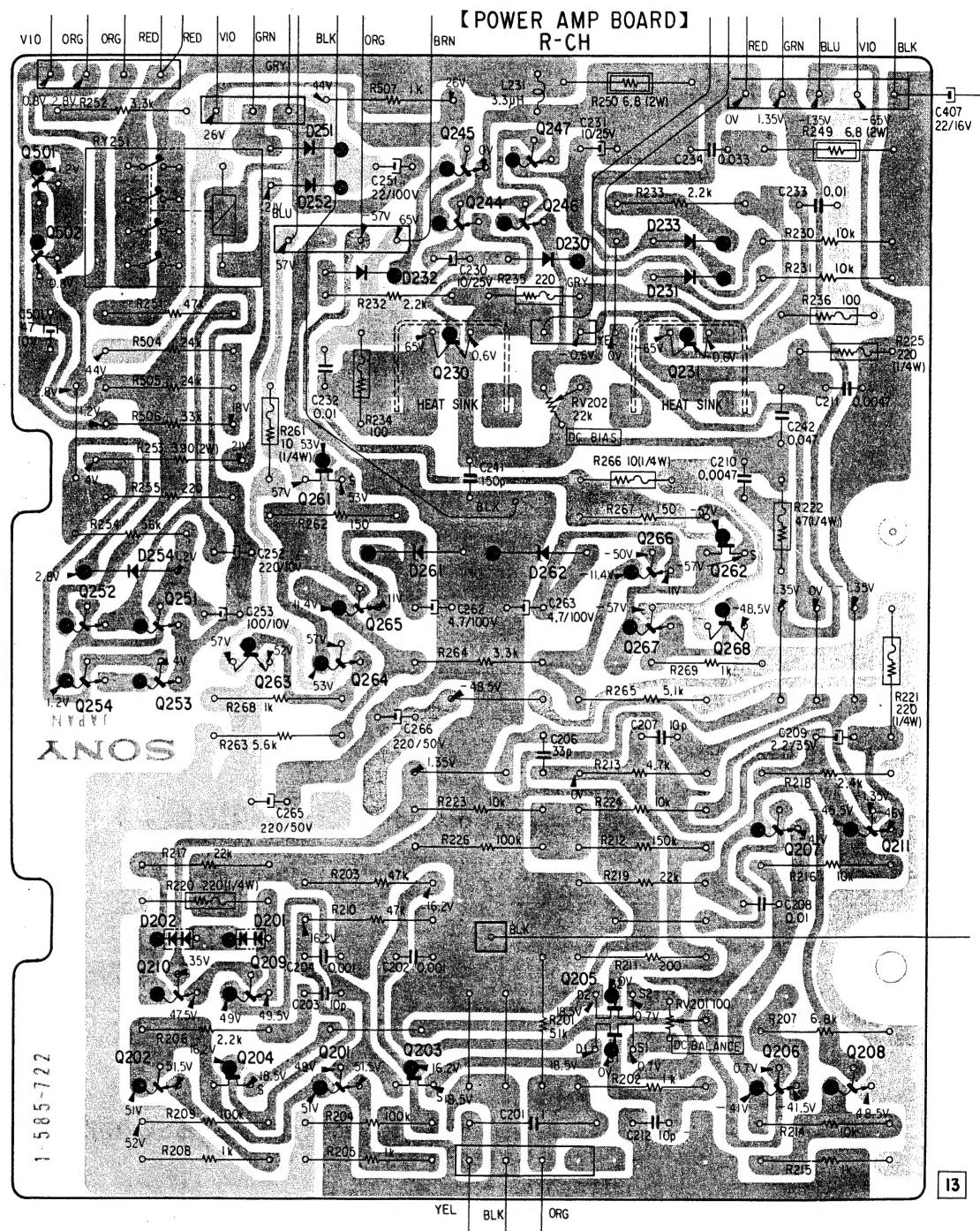
• : nonflammable resistor

— : fusible resistor.

4-2. MOUNTING DIAGRAM – R-CH Power Amp Board –

— Conductor Side —

- **Replacement Semiconductors: See page 8.**



Q	501 502	252 253	251 202	210	204 209	263	261 264	265 201	245 244	247 246	247 246	266 205	231 267	262 268	207 206	211 208
D			254 202		201	251 252		232 261		230 262		233 231				

● : B+pattern

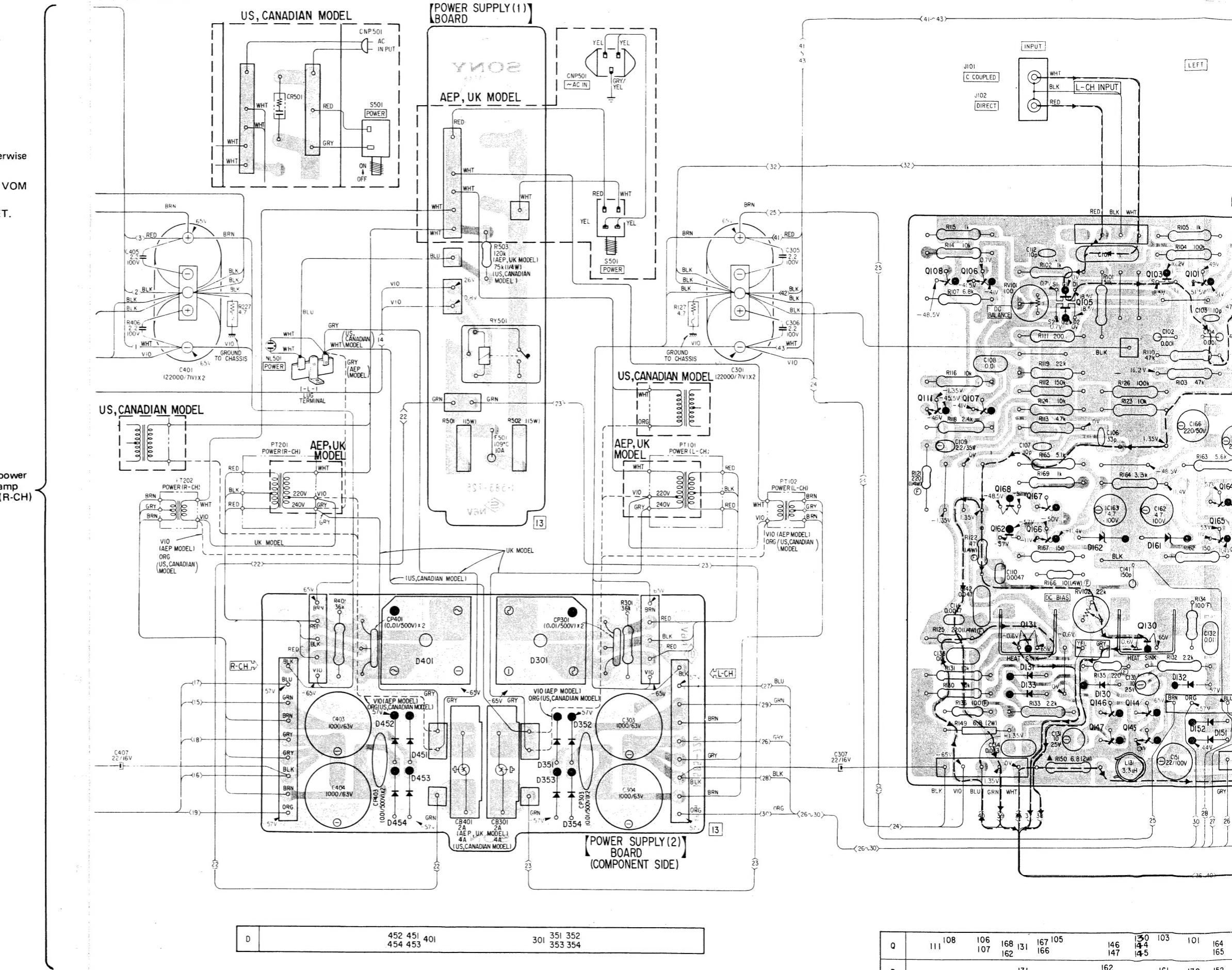
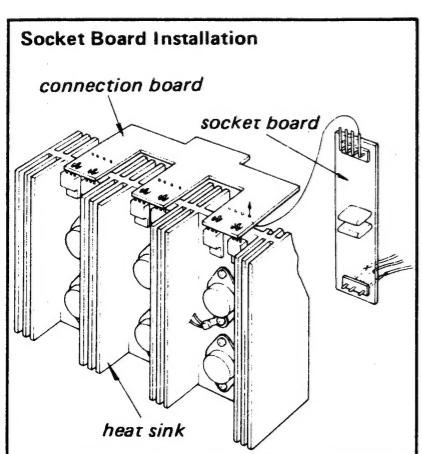
-  : nonflammable resistor
-  : fusible resistor.

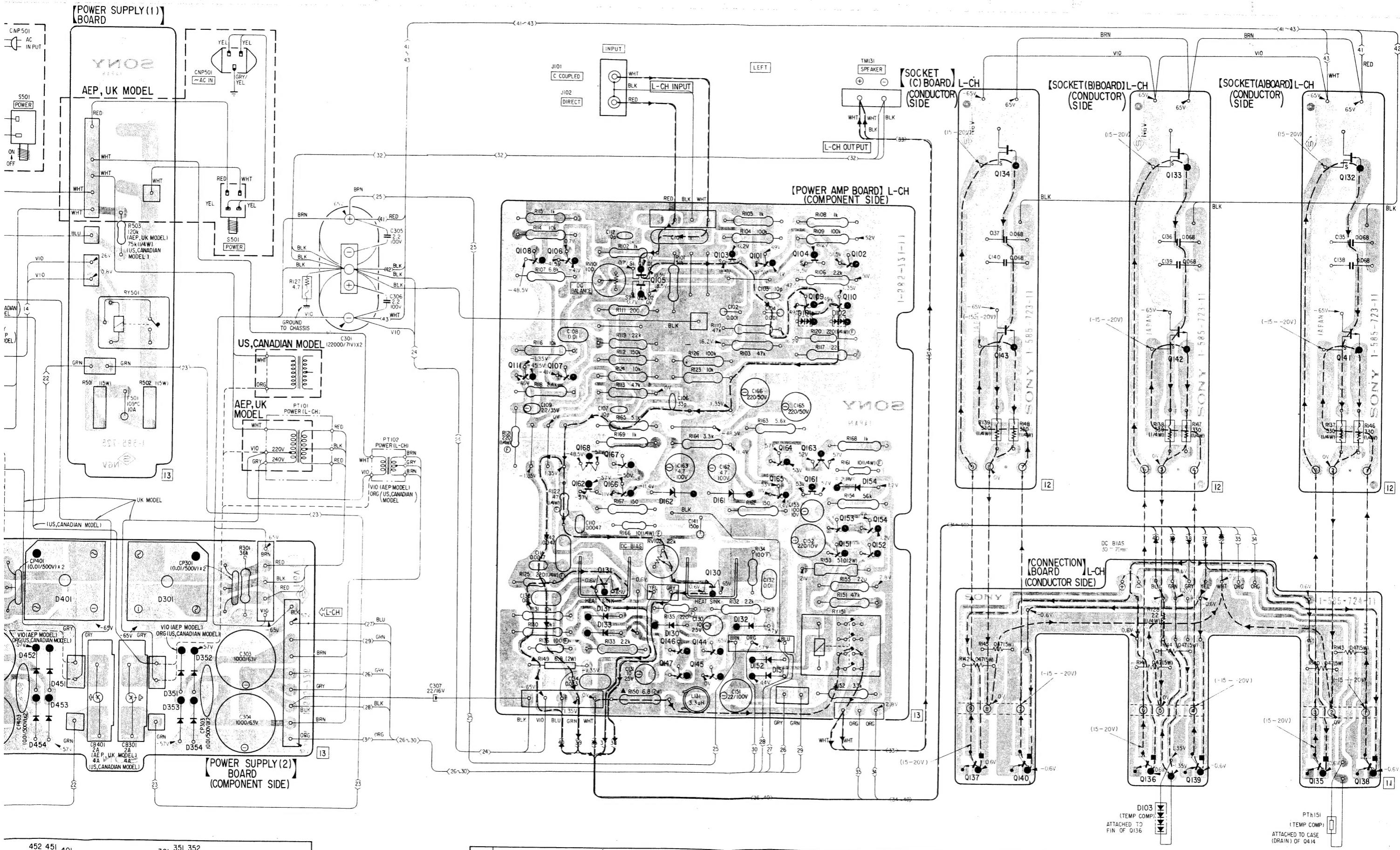
4-4. MOUNTING DIAGRAM – L-CH Power Amp Board –

– Component Side –

Note

-  : B + pattern
-  : signal path
-  : nonflammable resistor
-  : fusible resistor.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM (20k Ω /V).
- () : voltage variations according to the rank of V-FET.





452 451 401

301 351 352
353 354

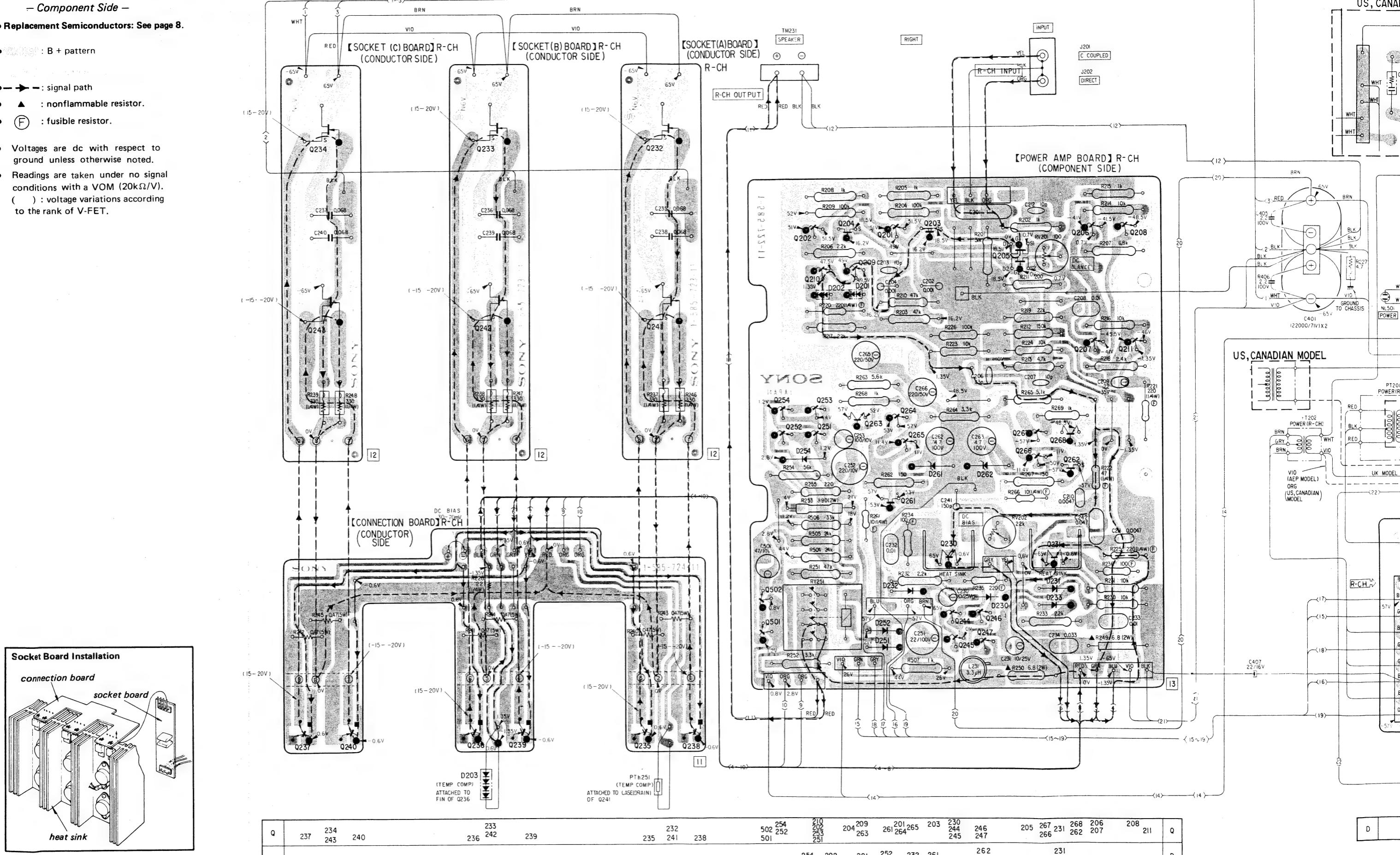
Q	111 108 106 168 131 167 105 107 162 130 146 144 145	130 103 101 164 109 104 163 102 165 161 151 153 151	154 152	134 143	133 142	139	132 141	138	Q
D	131 133	162 130	161 132	152 151	101	102 154	137 140	136 142	D

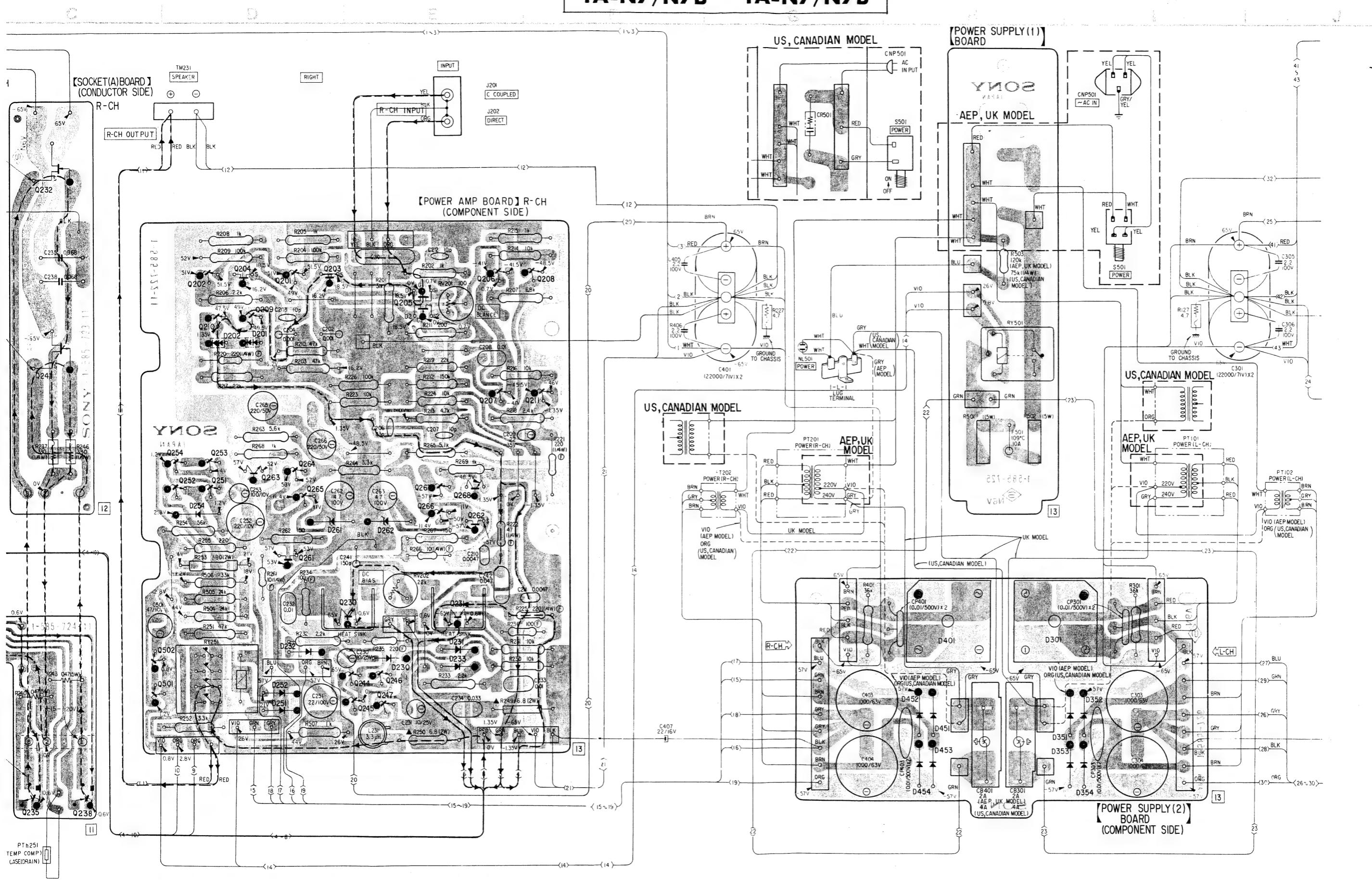
4-5. MOUNTING DIAGRAM – R-CH Power Amp Board –

– Component Side –

- **Replacement Semiconductors:** See page 8.

-  : B + pattern
-  : signal path
-  : nonflammable resistor.
-  : fusible resistor.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM ($20k\Omega/V$).
- () : voltage variations according to the rank of V-FET.





power
amp
(L-CH)

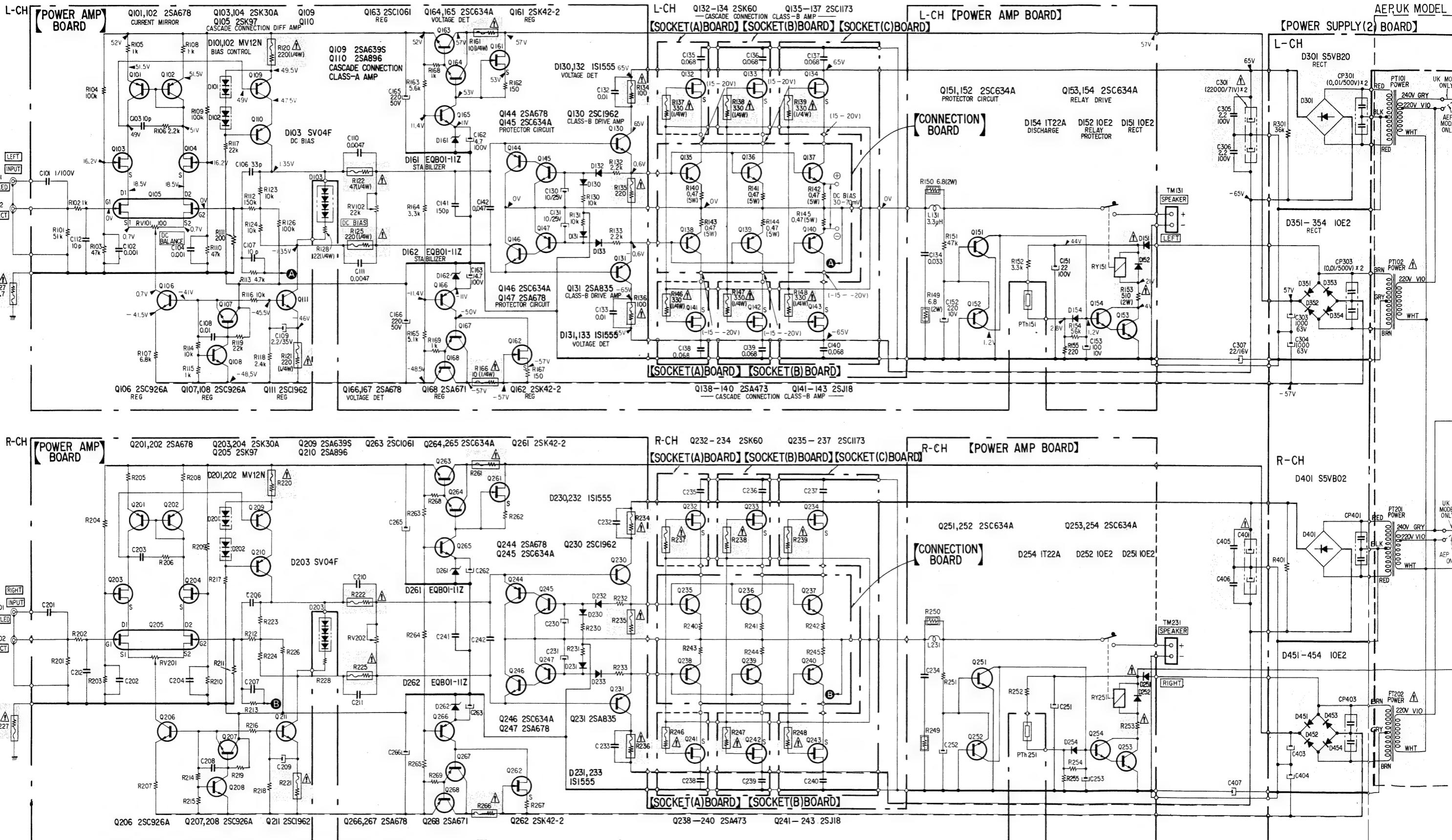
PTh251
TEMP COMP)
CASE(DRAIN)

D	452 451 401 454 453	351 352 353 354
---	------------------------	--------------------

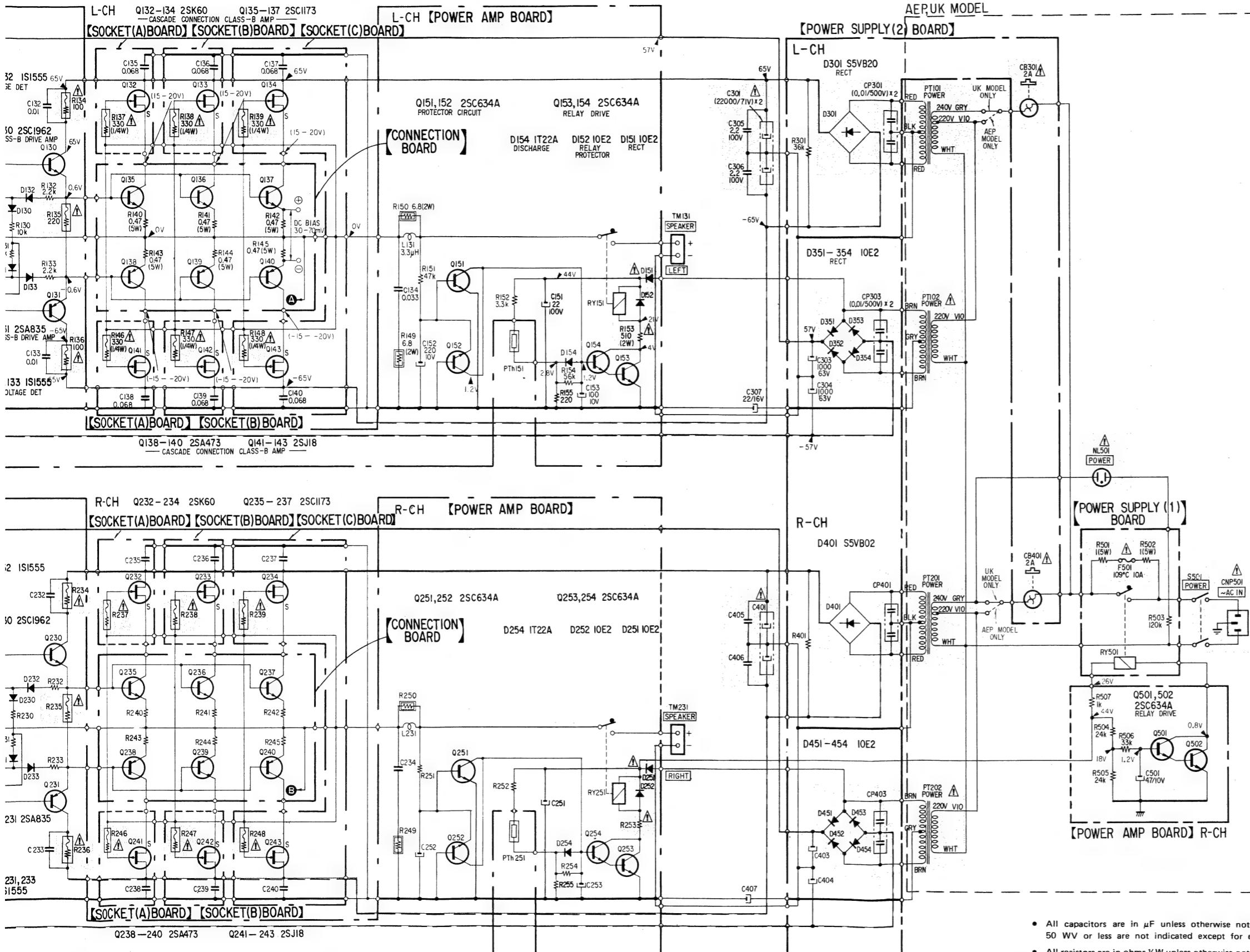
Note: The components identified by shading and  mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

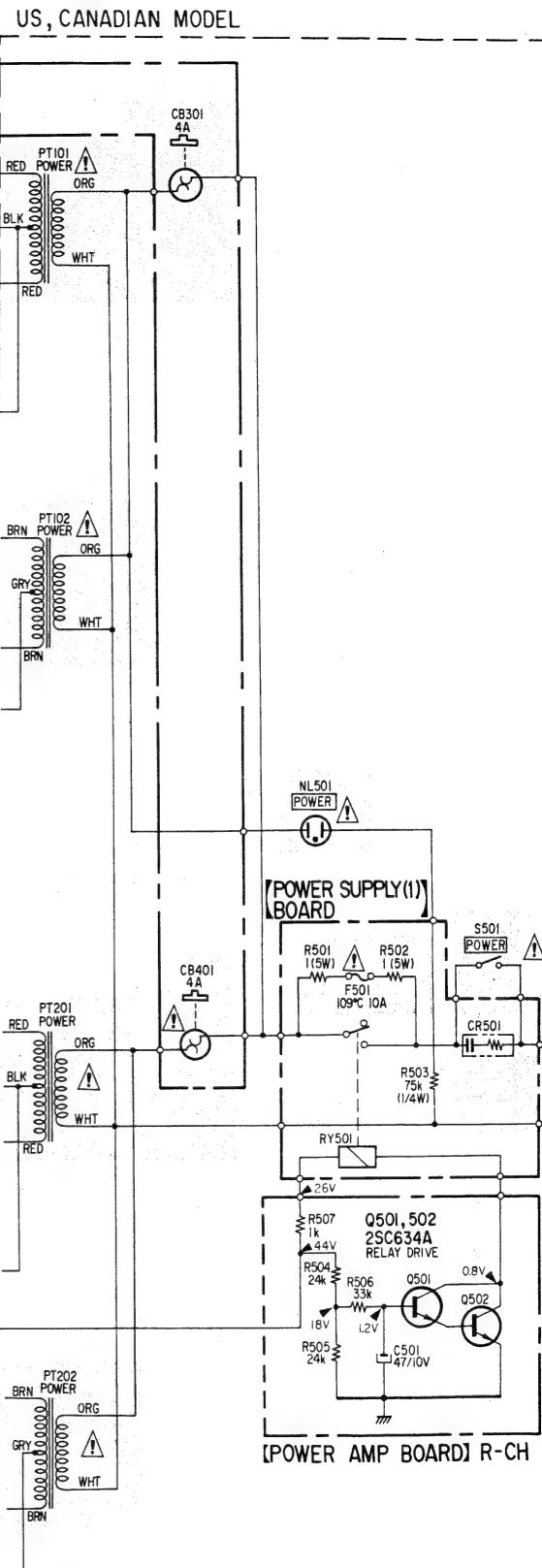
4-6. SCHEMATIC DIAGRAM



Imposants identifiés par un trame et une marque  critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



- All capacitors are in μ F unless otherwise noted. μ F = $\mu\mu$ F 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms $\frac{1}{2}$ W unless otherwise noted. $k\Omega = 1000\Omega$, $M\Omega = 1000k\Omega$
-  nonflammable resistor.
-  fusible resistor.
- — : B+ bus.
- - - - : B- bus.
-  panel designation.



-  adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.

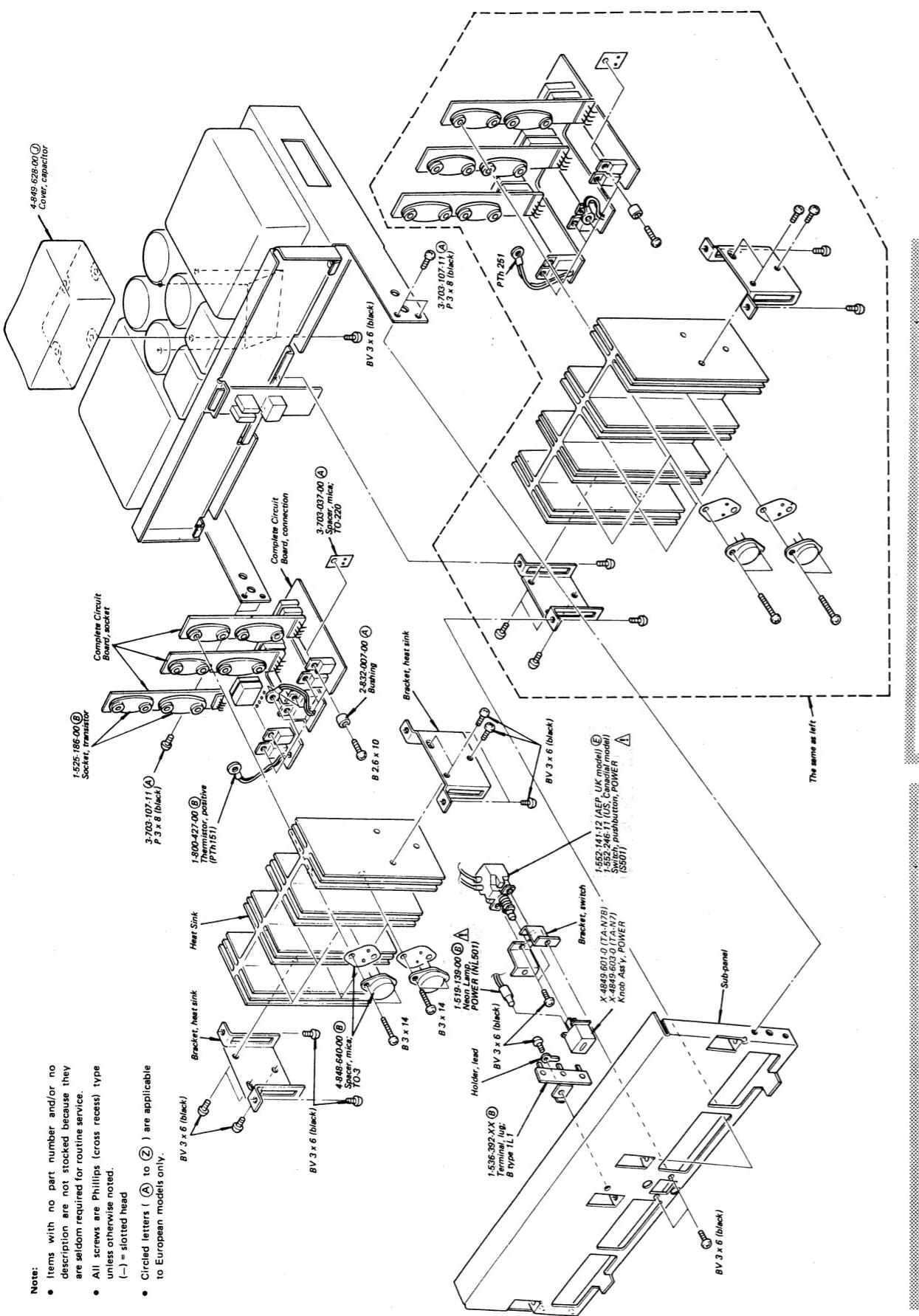
- Readings are taken under no signal conditions with a VOM (20k Ω /V).

- () : voltage variations according to the rank of V-FET.

- Switch

Ref. No.	Switch	Position
S501	POWER	OFF

5-2.



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
(-)= slotted head
- Circled letters (A) to (Z) are applicable to European models only.

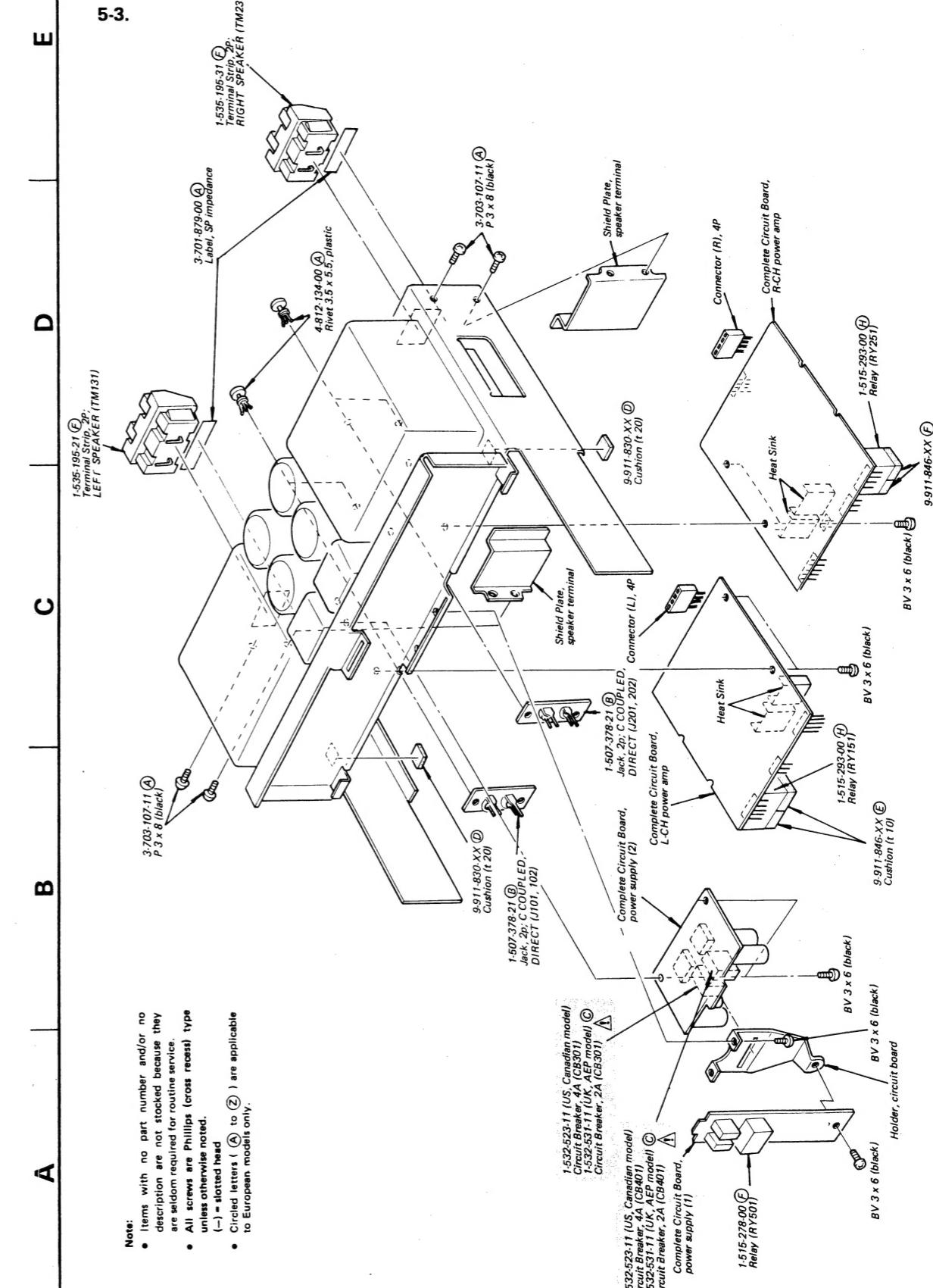
Note: The components identified by shading and  mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head
- Circled letters (A) to (Z) are applicable to European models only.

5-3.



- 20

Note: The components identified by shading and  mark are critical for safety. Replace only with part number **critical**

Attention: Les composants identifiés par un trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 6
ELECTRICAL PARTS LIST

5-4.

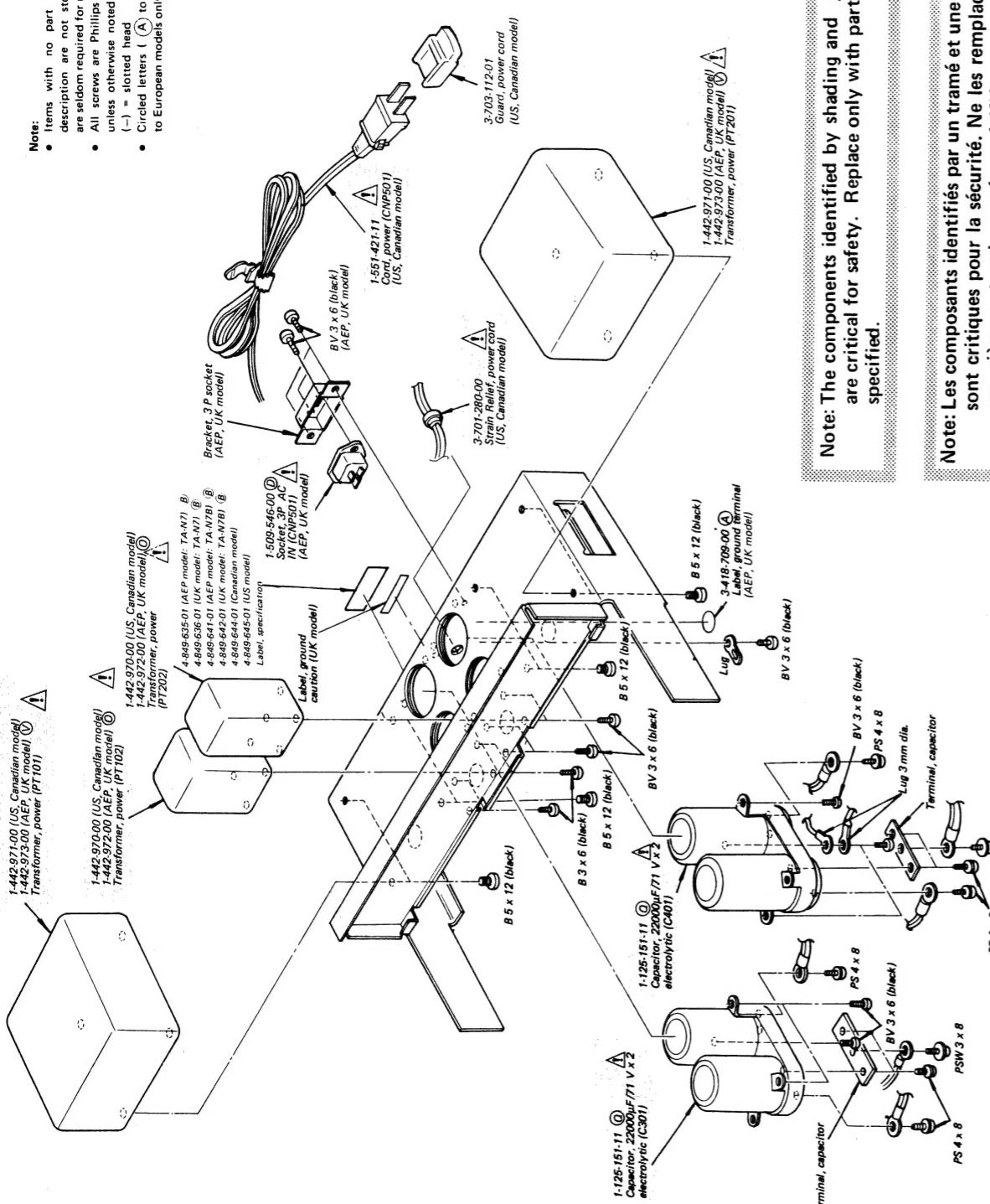
E

D

C

B

A



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head (A) to (Z) = applicable to European models only.

Note: The components identified by shading and \triangle mark are critical for safety. Replace only with part number specified.

Ref. No. Part No. Description

SEMICONDUCTORS
Transistors

Q101, 201	8-727-788-00	◎ 2SA678
Q102, 202		
⇒ D103, 203	8-719-300-11	◎ SV04S
D130-133	8-719-815-55	◎ 1S1555
D230-233		
D151, 251	△ 8-719-200-02	◎ 10E2
D152, 252	8-719-200-02	◎ 10E2
Q106-108	8-720-950-03	◎ 2SC926A
Q206-208		
Q109, 209	8-729-163-93	◎ 2SA639S
Q110, 210	8-765-082-20	◎ 2SA896
Q111, 211	8-765-170-01	◎ 2SC1962
Q130, 230		
Q131, 231	8-762-020-00	◎ 2SA835
Q132-134	8-762-355-00	◎ 2SK60
Q232-234		
Q135-137	8-729-217-33	◎ 2SC1173
Q235-237		
Q138-140	8-729-247-33	◎ 2SA473
Q238-240		
Q141-143	8-762-455-00	◎ 2SJ18
Q241-243		
Q144, 244	8-727-788-00	◎ 2SA678
⇒ Q145, 245	8-729-663-47	◎ 2SC1364
⇒ Q146, 246		
Q147, 247	8-727-788-00	◎ 2SA678
⇒ Q151-154	8-729-663-47	◎ 2SC1364
⇒ Q251-254		
Q161, 261	8-727-312-00	◎ 2SK42-2
Q162, 262		
Q163, 263	8-729-316-12	◎ 2SC1061
⇒ Q164, 264	8-729-663-47	◎ 2SC1364
⇒ Q165, 265		
Q166, 266	8-727-788-00	◎ 2SA678
Q167, 267		
Q168, 268	8-729-317-12	◎ 2SA671
⇒ Q501, 502	8-729-663-47	◎ 2SC1364

⇒ : Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading and \triangle mark are critical for safety. Replace only with part number specified.

• Circled letters (A to Z) are applicable to European models only.

Ref. No. Part No. Description

Diodes

D101, 201	8-719-912-00	◎ MV12N
D102, 202		
⇒ D103, 203	8-719-300-11	◎ SV04S
D130-133	8-719-815-55	◎ 1S1555
D230-233		
D151, 251	△ 8-719-200-02	◎ 10E2
D152, 252	8-719-200-02	◎ 10E2

⇒ D154, 254	8-719-422-21	◎ 1T22AM
D161, 261	8-719-930-11	◎ EQB01-11Z
D162, 262		
D301, 401	△ 8-719-505-20	◎ S5VB20
D351-354	△ 8-719-200-02	◎ 10E2
D451-454		

Thermistor

PTH 151	1-800-427-00	◎ positive
PTH 251		

CAPACITORS

All capacitors are in μ F and ceramic unless otherwise noted.		
50WV or less are not indicated except for electrolytics. pF = μ μ F, elect = electrolytic		
C101, 201	1-130-083-11	◎ 1 100V polyethylene
C102, 202	1-103-775-11	◎ 0.001 polystyrol
C103, 203	1-102-947-11	◎ 10p
C104, 204	1-103-775-11	◎ 0.001 polystyrol
C106, 206	1-102-963-11	◎ 33p
C107, 207	1-102-947-11	◎ 10p
C108, 208	1-108-239-12	◎ 0.01
C109, 209	1-131-217-11	◎ 2.2 35V mylar
C110, 210	1-108-234-12	◎ 0.0047 tantalum
C111, 211	1-108-234-12	◎ 0.0047 mylar
C112, 212	1-102-947-11	◎ 10p
C130, 230	1-123-187-11	◎ 10 25V elect
C131, 231		
C132, 232	1-108-239-12	◎ 0.01 mylar
C133, 233		

Note: Les composants identifiés par un trame et une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

TA-N7/N7B TA-N7/N7B

• Circled letters (Ⓐ to Ⓛ) are applicable to European models only.

Ref. No. Part No. Description

C134, 234	1-108-244-12	Ⓐ 0.033	mylar
C135-140	1-108-847-12	Ⓐ 0.068	mylar
C235-240			
C141, 241	1-103-755-11	Ⓐ 150p	polystyrol
C142, 242	1-108-246-12	Ⓐ 0.047	mylar
C151, 251	1-123-081-11	Ⓑ 22	100V elect
C152, 252	1-123-072-11	Ⓑ 220	10V elect
C153, 253	1-123-196-11	Ⓐ 100	10V elect
C162, 262	1-123-255-11	Ⓑ 4.7	100V elect
C163, 263			
C165, 265	1-121-423-11	Ⓑ 220	50V elect
C166, 266			
C301, 401	Ⓐ 1-125-151-11	Ⓒ 22000+22000	71V elect
C303, 403	1-123-262-11	Ⓓ 1000	63V elect
C304, 404			
C305, 405	Ⓐ 1-130-084-11	Ⓓ 2.2	100V polyethylene
C306, 406			
C307, 407	1-121-479-11	Ⓐ 22	16V elect
C501	1-123-195-11	Ⓐ 47	10V elect

RESISTORS

All resistors are in ohms and 1/4W carbon unless otherwise noted.

R101, 201	1-244-914-11	Ⓐ 51k
R102, 202	1-244-873-11	Ⓐ 1k
R103, 203	1-244-913-11	Ⓐ 47k
R104, 204	1-244-921-11	Ⓐ 100k
R105, 205	1-244-873-11	Ⓐ 1k
R106, 206	1-244-881-11	Ⓐ 2.2k
R107, 207	1-244-893-11	Ⓐ 6.8k
R108, 208	1-244-873-11	Ⓐ 1k
R109, 209	1-244-921-11	Ⓐ 100k
R110, 210	1-244-913-11	Ⓐ 47k
R111, 211	1-244-856-11	Ⓐ 200
R112, 212	1-244-925-11	Ⓐ 150k
R113, 213	1-244-889-11	Ⓐ 4.7k
R114, 214	1-244-897-11	Ⓐ 10k
R115, 215	1-244-873-11	Ⓐ 1k

Note: The components identified by shading and Ⓛ mark are critical for safety. Replace only with part number specified.

Ref. No. Part No. Description

R116, 216	1-244-897-11	Ⓐ 10k
R117, 217	1-244-905-11	Ⓐ 22k
R118, 218	1-244-882-11	Ⓐ 2.4k
R119, 219	1-244-905-11	Ⓐ 22k
R120, 220	Ⓐ 1-212-889-11	Ⓐ 220 1/4W fusible
R121, 221		
R122, 222	Ⓐ 1-212-873-11	Ⓐ 47 1/4W fusible
R123, 223		
R124, 224	1-244-897-11	Ⓐ 10k
R125, 225	Ⓐ 1-212-889-11	Ⓐ 220 1/4W fusible
R126, 226	1-244-921-11	Ⓐ 100k
R127, 227	Ⓐ 1-212-950-11	Ⓐ 4.7 1/4W fusible
R128, 228	1-244-633-11	Ⓐ 22 1/4W
R130, 230		
R131, 231	1-244-897-11	Ⓐ 10k
R132, 232		
R133, 233	1-244-881-11	Ⓐ 2.2k
R134, 234	Ⓐ 1-212-982-11	Ⓐ 100 1/2W fusible
R135, 235	Ⓐ 1-212-990-11	Ⓐ 220 1/2W fusible
R136, 236	Ⓐ 1-212-982-11	Ⓐ 100 1/2W fusible
R137-139	Ⓐ 1-212-893-11	Ⓐ 330 1/4W fusible
R237-239		
R140-145		
R240-245	1-217-158-11	Ⓐ 0.47 5W metal oxide
R146-148	Ⓐ 1-212-893-11	Ⓐ 330 1/4W fusible
R246-248		
R149, 249		
R150, 250	1-206-459-11	Ⓐ 6.8 2W metal oxide
R151, 251	1-244-913-11	Ⓐ 47k
R152, 252	1-244-885-11	Ⓐ 3.3k
R153, 253	Ⓐ 1-206-657-11	Ⓐ 510 2W metal oxide
R154, 254	1-244-915-11	Ⓐ 56k
R155, 255	1-244-857-11	Ⓐ 220
R161, 261	Ⓐ 1-212-857-11	Ⓐ 10 1/4W fusible
R162, 262	1-244-853-11	Ⓐ 150
R163, 263	1-244-891-11	Ⓐ 5.6k
R164, 264	1-244-885-11	Ⓐ 3.3k
R165, 265	1-244-890-11	Ⓐ 5.1k

Note: Les composants identifiés par un trame et une marque Ⓛ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No. Part No. Description

R166, 266	Ⓐ 1-212-857-11	Ⓐ 10 1/4W fusible
R167, 267	1-244-853-11	Ⓐ 150
R168, 268		
R169, 269	1-244-873-11	Ⓐ 1k
R301, 401	1-244-910-11	Ⓐ 36k
R501, 502	Ⓐ 1-217-160-11	Ⓑ 1 5W metal oxide
R503	1-244-718-11	1-244-925-11 75k 1/4W (US, Canadian model)
R504, 505	1-244-906-11	Ⓐ 24k
R506	1-244-909-11	Ⓐ 33k
R507	1-244-873-11	Ⓐ 1k
RV101, 201	1-224-247-XX	Ⓒ 100 adjustable, DC balance
RV102, 202	1-224-253-XX	Ⓒ 22k adjustable, DC bias

SWITCH

S501	Ⓐ 1-552-141-12	Ⓓ Pushbutton, POWER (AEP, UK model)
	Ⓐ 1-552-246-11	Pushbutton, POWER (US, Canadian model)

MISCELLANEOUS

CB301, 401	Ⓐ 1-532-523-11	Circuit Breaker, 4A (US, Canadian model)
	Ⓐ 1-532-531-11	Ⓒ Circuit Breaker, 2A (AEP, UK model)
CNP501	Ⓐ 1-509-546-00	Ⓓ Socket, 3p AC IN (AEP, UK model)
CP301, 303	Ⓐ 1-551-421-11	Cord, power (US, Canadian model)
CP401, 403	Ⓐ 1-102-355-11	Ⓑ Encapsulated Component
CR501	Ⓐ 1-231-326-11	Encapsulated Component (US model)
	Ⓐ 1-231-341-00	Encapsulated Component (Canadian model)
F501	Ⓐ 1-532-496-00	Ⓒ Fuse, 109°C, 10A
J101, 201	1-507-378-21	Ⓓ Jack, 2p; C-COUPLED, DIRECT
J102, 202		
L131, 231	1-420-879-00	Ⓑ Coil, 3.3μH
NL501	Ⓐ 1-519-139-00	Ⓑ Neon Lamp, power
PT101, 201	Ⓐ 1-442-971-00	Transformer, power (US, Canadian model)
	Ⓐ 1-442-973-00	Ⓒ Transformer, power (AEP, UK model)
PT102, 202	Ⓐ 1-442-970-00	Transformer, power (US, Canadian model)
	Ⓐ 1-442-972-00	Ⓓ Transformer, power (AEP, UK model)
RY151, 251	1-515-293-00	Ⓗ Relay
RY501	1-515-278-00	Ⓕ Relay
TM131	1-535-195-21	Ⓕ Terminal Strip 2p; LEFT SPEAKER
TM231	1-535-195-31	Ⓕ Terminal Strip 2p; RIGHT SPEAKER
	1-525-186-00	Ⓑ Socket, transistor
	1-536-392-XX	Ⓑ Terminal, lug

Note: The components identified by shading and Ⓛ mark are critical for safety. Replace only with part number specified.

• Circled letters (Ⓐ to Ⓛ) are applicable to European models only.

ACCESSORIES & PACKING MATERIALS

Part No. Description

Ⓐ 1-534-819-12	Ⓖ Cord, power (UK model)
3-701-622-00	Ⓐ Bag, plastic (UK model)
3-701-630-00	Ⓐ Bag, plastic; printed matters
3-770-058-21	Manual, instruction (US model)
3-770-058-21	Manual, instruction (Canadian model)
3-794-245-31	Manual, instruction (AEP, UK model)
3-770-441-11	Ⓗ Manual, instruction (AEP, UK model)
4-848-648-00	Ⓑ Bag, protection; set
4-849-622-00	Ⓒ Cushion (A)
4-849-623-00	Ⓒ Cushion (B)
4-849-637-00	Ⓕ Carton (TA-N7)
4-849-638-00	Ⓒ Spacer
4-849-639-00	Ⓒ Cushion, lower
4-849-643-00	Ⓖ Carton (TA-N7B)